REMARKS

The Examiner is thanked for the examination of the application. In view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections. In response to a telephone request from the Examiner, claim 39 has now been amended.

The Examiner is thanked for the interview granted Applicant's attorney. At the interview the following arguments were discussed with the Examiner:

Art Rejections:

Claims 21, 24 - 34, 36, and 38 – 39 were rejected under 35 USC 103(a) as being unpatentable over the article *Town* in view of US 2002/0122644, hereinafter Birks. Claims 35 and 37 have been rejected under 35 USC 103(a) as being unpatentable over the article *Town* in view of Birks, and further in view of USP 6,826,342, hereinafter *Bise*. In response to the rejection, independent claims 21, 39 and 40 have been amended to include the subject matter of claim 33.

Claims 21, 39 and 40 are the only independent claims pending. Claim 21 defines a source of light with a broad (300nm) spectrum generated with long pulses (>0.5ns) in a fiber with a large core (>4 microns). Claim 40 recites a corresponding method.

Generation of such spectra in a fiber, such as supercontinuum generation, is largely a nonlinear optical process. At the time of the invention, supercontinua were therefore generally generated via nonlinear fibers with small cores (a few microns or less) and with pump sources with short pulses typically in the ps or fs regimes. It was therefore surprising, at the time of the invention, that long pulses in a large core fiber were able to produce such a wide spectrum, particularly wherein more than 80% of the light of the spectrum of wavelengths is in the lowest order transverse mode supported by the fiber.

Town discloses a supercontinuum source formed by a pump source providing long (42ns) pulses and a randomly microstructured fiber. The randomly structured fiber has multiple guiding regions with a diameter of *a few microns or less*, that is otherwise impossible to define. ("*Whilst it was impossible to determine the exact*

properties of the nonlinear guiding ***regions*** *used in the randomly structured fiber..."* page 235, 2nd paragraph, emphasis added).

Town fails to demonstrate or teach several features of the combinations of claims 21 and 40.

Firstly, the spectrum in *Town* is generated in regions (i.e. cores) with unknown diameter. However, *Town* mentions that some are a few microns or less, i.e., less than 2 microns, which is clearly less than the 4 microns set forth in the claims. The Examiner is not relying on the diameter of *Town's* core for the rejection. Having only a vague indication of the core diameter, the skilled person would apply the common general knowledge of supercontinuum generation, as provided above and in the introduction by *Town*. Therefore, the skilled person would conclude that it was the smaller of the regions of the fiber that contributed to the widest part of the spectrum, as such regions would be more nonlinear.

Secondly, *Town* is silent with regard to the mode structure of the generated light in the nonlinear fiber. However, the light is generated in multiple regions and is therefore inherently multi-mode in the nonlinear fiber. This is also clear from Figure 1 of *Town* where the white light is clearly guided in several regions of the fiber. Accordingly, *Town* fails to disclose that more than 80% of the light of the spectrum of wavelengths is in the lowest-order transverse mode supported by the fiber.

The Examiner cites *Birks* in order to overcome the deficiencies of *Town*. *Birks* discloses a linear arrangement that is intended to transport light with a minimum of change or conversion. In order to do this, *Birks* uses a large diameter core.

However, *Town* works in a completely opposite manner. *Town* presumably uses a small core to create a nonlinearity in order to transform the light as it passes therethrough. That is why *Town* speculates that the core is most likely a few microns or less.

Since *Birks* is using a large core to create a linear effect so as to transport and not transform the light, there is no reason why one of skill in the art would combine it with *Town* which uses a small core to create a nonlinearity to transform the light as it is transported.

Accordingly, Applicant submits that the rejection is improper, and should therefore be withdrawn.

Claim 39 recites a source of light of a spectrum of wavelengths extending over more than 300 nm, the source comprising a laser, which operates at or near its fundamental wavelength in the range 1000 nm to 1100 nm and produces pulses of a duration longer than 0.5 ns; and a micro-structured optical fiber arranged to guide the pulses, wherein said optical fiber has a core having a diameter greater than 4 microns, wherein the light is generated by the pulses in the fiber, and the micro-structured optical fiber has a zero dispersion wavelength between 1000 nm and 1100 nm. And, wherein the micro-structured optical fiber is arranged to support propagation of the pulses in a single transverse mode.

Claim 39 has been amended as requested. It has also been amended to include the core diameter so as to be consistent with the foregoing arguments. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claim 39 as well.

Bise does not overcome any of the above-discussed deficiencies.

The dependent claims are allowable at least for the reasons set forth above.

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to enter the foregoing amendments and withdraw the outstanding objections and rejections.

In the event that there are any questions concerning this Amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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